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## GERMAN HISTORY OF SCIENCE JOURNALS AND THE GERMAN HISTORY OF SCIENCE COMMUNITY

Historians of science are familiar with the role journals have played in the emergence of scientific communities and the formation of disciplines. Just as Lavoisier's *Annales de Chimie* spread the new chemistry all over Europe, or as Ostwald's *Zeitschrift für Physikalische Chemie* in effect created physical chemistry, very often a journal was the crystallisation point for an emerging field.

For the history of science, however, the same mechanism would be difficult to assert, at least in the case of Germany. This may be surprising, as the country can boast of early examples of an institutionalised history of science: a first journal devoted to the history of medicine in 1846, the oldest – and still existing – Society for the History of Medicine and Science in 1901, and four years later the first university chair and research institute. Nevertheless, it would be inadequate to take these dates as logical steps in the emergence of a new discipline. Even if the instabilities of twentieth-century German history are taken into account, the history of science does not seem to follow the well-known pattern of other disciplines.

There may be a number of explanations for this. Perhaps we are even wrong if we think of the history of science as of a discipline. Isn't it rather a field of research for various disciplines, and are not its often-deplored institutional deficiencies merely a consequence of what might equally be seen as one of the particular advantages and challenges of our field?

We should keep this question in mind when we examine the emergence of German history of science, its specialised journals and their mutual interrelationship and vicissitudes.<sup>1</sup> By 'German' in this context I mean

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<sup>1</sup> There is no literature, and not even a bibliography, especially devoted to German history

the German speaking countries, though Germany in the restricted sense is the obvious centre. And by 'history of science' I mean a more general notion, corresponding to the German term *Wissenschaftsgeschichte*, to include not only parts of the history of medicine and technology, but also the history of ideas and learning in general. In itself this approach reflects a feature of the history of science in Germany, as we shall see in what follows.

#### AN OVERALL PATTERN?

At first glance the founding dates of German history of science journals during the past 150 years follow the pattern of any one of the growth graphs fashionable in scientometrics a couple of decades ago. We have a slow beginning in the mid-nineteenth century, a steep exponential take-off immediately after the turn of the century, and brief periods of stagnation between 1914-1925 and between 1933-1949. There were immediate returns to exponential growth afterwards, a maximum increase between 1965-1985, and finally a significant slowing down during the past ten years. Except for the latter, the curve looks exactly as one would have guessed without any knowledge of the empirical figures.

Closer examination, however, reveals a more complex picture. First, if we look at the distribution by subject, the history of medicine and of mathematics, which took the lead in the early days, did not share in with the proliferation of journals in general. Second, the number of extremely short-lived ventures was alarmingly high, as if either the market for history of science publications were extremely competitive and profitable – which is clearly not the case! – or as if the field has not achieved sufficient stability. Relatively few journals have in fact survived up to the present, be it because they represent typical profiles of mainstream historiography, or because they cater for fairly specific demands. For a deeper understanding of these figures we must turn to the twofold origin of German history of science.

of science journals. For a more general treatment of the history of the discipline see VOM BROCKE, Bernhard, "Das Elend der Wissenschaftsgeschichte in Deutschland: Zur Entwicklung der Wissenschaftsgeschichte seit Ranke, insbesondere im 20. Jahrhundert", *Mitteilungen der Österreichischen Gesellschaft für Wissenschaftsgeschichte*, 1993, 13: 3-81; Id., "Das versenkte Erbe: Über die Vernachlässigung der Wissenschaftsgeschichte in Deutschland", in *Neue Horizonte* 95/96, ed. by Ernst Peter Fischer (München, 1995), 109-155.

#### A DOUBLE ANCESTRY

The emergence of an independent historiography of science is closely linked to the rise of the modern system of scientific disciplines. The process of discipline formation implied a deliberate use of history. It offered identity, shaped the public image, and served to legitimate claims for status and support. When around 1800 the modern, more narrowly focused disciplines began to displace the former ideal of *gens de lettres*, these attempts culminated in the 12-volume *Geschichte der Künste und Wissenschaften seit der Wiederherstellung derselben bis an das Ende des achtzehnten Jahrhunderts*:<sup>2</sup> a blend of handbook and bibliography reflecting progress and enlightenment in all fields of art and science from painting to chemistry. Throughout the nineteenth century this model was never challenged. Its genre was the book, not an article in a learned journal.

Doctors and scientists, however, who typically communicated through journals rather than through books, developed a historiographical genre of their own: the obituary. Amounting to almost book length, obituaries in nineteenth-century science journals served a double purpose. As a pedagogical device they linked the idea of progress with the notion of genius, and as a cultural device they balanced the objectivity of modern science by choosing a more personal point of reference. In the form of these obituaries, history used to be part of science journalism long before the first history of medicine or history of science journals appeared.

The earliest one *Janus*, subtitled *Zeitschrift für Geschichte und Literatur der Medicin*,<sup>3</sup> came out in 1846 and was continued as *Central-Magazin für Geschichte und Literaturgeschichte der Medicin, ärztliche Biographie, Epidemiographie, medicinische Geographie und Statistik*<sup>4</sup> until 1853.<sup>5</sup> A similar hotchpotch of non-clinical, non-experimental medical sub-disciplines, including the history of medicine, was still typical of the *Deutsches Archiv für Geschichte der Medicin und medicinische Geographie*.<sup>6</sup>

At the same time the first journals devoted exclusively to the history of

<sup>2</sup> (Göttingen, 1796-1819).

<sup>3</sup> Published in Breslau.

<sup>4</sup> Published in Gotha.

<sup>5</sup> See Karl-Heinz LEVEN's contribution to this volume.

<sup>6</sup> (Leipzig, 1878-1885).

mathematics<sup>7</sup> testify to the fact that this field had already reached a considerable degree of recognition and differentiation: The *Abhandlungen zur Geschichte der Mathematik*<sup>8</sup> – originally a supplement to Moritz Cantor's *Zeitschrift für Mathematik und Physik* – is an ambitious series containing lengthy articles or monographs on mainly Greek or Latin source texts. Its international counterpart, which published briefer articles and reviews, Gustav Eneström's polyglot *Bibliotheca Mathematica N.S.: Zeitschrift für Geschichte der mathematischen Wissenschaften*<sup>9</sup> was edited in Stockholm but published by a Berlin publisher and contained a substantial proportion of German contributions. Although these pioneers were fairly successful, no further German journal exclusively devoted to the history of mathematics has ever been published. And since the number of mathematical topics in general history of science journals remained low, we have to assume that the more technical approach favoured in this field until recently enabled the authors to get their historical papers published in mathematical journals, so that there was little demand for purely historical ones.

Besides its scientific origin, German history of science has a second – if largely forgotten – background: general history.<sup>10</sup> In 1858 Leopold Ranke, the leading Prussian historian of the day, initiated a *Geschichte der Wissenschaften in Deutschland*. 32 volumes appeared between 1864 and 1913, and they cover fields as different as economy, mineralogy, law, historiography and the science of warfare. Intended as a monument to national achievement, the gigantic undertaking was rooted in the Humboldtian idea of *Bildung* (higher education) and the belief in the unity of learning. The result, however, was almost the opposite: specialist histories for mineralogists, economists, historians and lawyers. The more the series advanced, the sligher were the chances of the envisaged final synthesis ever being written. Despite Ranke's attempt to bridge the disciplinary cultures by historicising them into an all-encompassing history of *Bildung* and *Wissenschaft*, general historians did not follow his lead. There are almost no traces of history of science in the journals and textbooks of German general historians, the only exception being Karl Lamprecht, who tried to in-

clude some of the vast material of Ranke's *Geschichte* into his own 19-volume *Deutsche Geschichte* (1891-1909), assisted for this purpose by his Leipzig colleague Wilhelm Ostwald, a physical chemist. But Lamprecht's ambitious plan to incorporate the history of science and technology into his Leipzig Institut für Kultur- und Universalgeschichte, and to transform the latter into a Kaiser-Wilhelm-Institut did not materialise because the historians objected to the idea.

There are aspects of the history of science, however, that have remained a regular or even strong element of general historiography ever since then: most notably the history of universities and of learning in general, but also the history of civilisation as exemplified, for instance, in the *Archiv für Kulturgeschichte*.<sup>11</sup> But it was not until the 1980s that general history journals opened their pages for the new social history of science and medicine. The more recent project on the 13 Federal Big Science Research Institutions (*Grossforschungsanlagen*), initiated by the general historians Gerhard Ritter and Rudolf Vierhaus, was in fact the first large-scale attempt to link the history and the history of science communities. The gap between them, however, remains and is often reinforced by institutional barriers.<sup>12</sup>

Scientist-historians, on the other side, took little notice of what was happening in general history. Surprisingly enough, the great nineteenth-century breakthrough in historical methodology associated with the German historical school had almost no impact on the historiography of science or medicine. This was partly a matter of education, since probably no nineteenth-century medical or scientific historian had a truly historical training, but it was partly also a matter of mutual distrust and rivalry between the 'two cultures', the arts and the sciences.

The case was different where the philological approach was concerned. The German academic elite came from a strong neo-humanist *Bildungsbürger*-tradition and even scientists had in most cases received a classical education at school. Therefore the methods of textual criticism and historical philology were fairly familiar to them. Accordingly, historians of science and medicine such as Hermann Kopp, the chemist, or Karl Sudhoff, a practising doctor, attempted to base the historiography of science on the

<sup>7</sup> See Joseph DAUBEN's contribution to this volume.

<sup>8</sup> (Leipzig, 1877-1913).

<sup>9</sup> (Berlin, 1884-1914/15).

<sup>10</sup> VON BROCKE, B., Op. cit.; see also his forthcoming *Wissenschaftsgeschichte als historische Disziplin: Zur Entwicklung der Wissenschaftsgeschichte in Deutschland seit Ranke*.

<sup>11</sup> (Cologne/Vienna, 1903→).

<sup>12</sup> TRISCHLER, Helmuth, "Wissenschaft und Forschung aus der Perspektive des Historikers", *Neue Politische Literatur*, 1988, 33: 393-416.



rigid methods of philology. Positivist and source oriented as they were, the editing of original documents was seen as one of their foremost tasks. This is amply documented not only by the many standard editions begun at that time, but also by a new generation of journals predominantly devoted to source studies.

In 1907 Karl Sudhoff, a scholar of Paracelsus, created the *Archiv für Geschichte der Medizin*<sup>13</sup> and its companion *Archiv für die Geschichte* (from 1927: *der Mathematik*), *der Naturwissenschaften und der Technik*<sup>14</sup> in order to offer separate journals to the history of medicine and the history of science communities.<sup>15</sup> Ideally, these archive type journals were meant to be permanent repositories for lasting results; but as the demand for publishing longer studies and almost book-length editions increased over the years, it was decided in 1929 to reorganise the two journals. For shorter research and discussion papers they were merged into *Sudhoffs Archiv für Geschichte der Medizin* (from 1934: *und der Naturwissenschaften*);<sup>16</sup> at the same period two new series were created for extensive research articles and source editions: the *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*,<sup>17</sup> run by Paul Diepgen and Julius Ruska, and, for the exact and mathematical sciences, the *Quellen und Studien zur Geschichte der Mathematik, Astronomie und Physik*<sup>18</sup> that appeared in a twin issue: part A devoted to *Quellen*, part B to *Studien*.

#### INSTITUTIONAL BEGINNINGS

As a rule these ambitious ventures were commercial enterprises. They would not have been successful, however, had the institutionalisation of the field not yet established the first more durable structures. In 1901, at the Hamburg Assembly of German Doctors and Naturalists, the Deutsche Gesellschaft für Geschichte der Medizin und Naturwissenschaften was created. It was the first history of science society in the world, with

<sup>13</sup> (Leipzig 1907-1928).

<sup>14</sup> (Leipzig 1908-1930).

<sup>15</sup> See Karl-Heinz LEVEN's contribution to this volume.

<sup>16</sup> (Leipzig, 1929-→).

<sup>17</sup> (Berlin, 1931-1942).

<sup>18</sup> (Berlin, 1930-1937/38).

a rather informal structure in its early years, not unlike the gatherings of the German *Naturforscher*, and very much dominated by Sudhoff's personality. From its very beginning the Deutsche Gesellschaft issued a journal *Mitteilungen zur Geschichte der Medizin und der Naturwissenschaften*.<sup>19</sup> In addition to a few original contributions it contained a great number of book reviews and abstracts of articles published elsewhere in order to create a framework for the emerging discipline.

In 1906 funds from the bequest of the Vienna medical historian Theodor Puschmann enabled Sudhoff to establish a teaching and research institute for the history of medicine at Leipzig, and in 1919 Sudhoff was promoted to full professor for the history of medicine: the first chair of this type – decades before the history of science made its way into the universities.

The history of technology was the second field that emerged fairly early in Germany. In this case national and professional motives were at work. A key event was the foundation of the Deutsches Museum in Munich in 1906, though the museum was not officially opened until 1925. Dedicated according to its statutes to the "masterworks of science and technology", the very conception of the Museum expressed the national pride and the strong self-esteem of German engineers. Accordingly, their powerful professional organisation Verein Deutscher Ingenieure was one of the major forces behind the Museum. The project received support from two popular periodicals for the history of technology: the pre-war newsletter *Deutsches Museum: Vorträge und Berichte*<sup>20</sup> and its post-war continuation *Deutsches Museum: Abhandlungen und Berichte*.<sup>21</sup> In addition, the Verein Deutscher Ingenieure published, from 1909 onward, a yearbook *Beiträge zur Geschichte der Technik und Industrie*<sup>22</sup> that was continued from 1933 as *Technikgeschichte*<sup>23</sup> and is still the leading German history of technology journal.

The history of science in a stricter sense was in a more difficult situation. Its pedagogical role in the creation of the scientific disciplines had been fulfilled; the natural sciences had achieved full institutionalisation

<sup>19</sup> (Leipzig, 1902-1941).

<sup>20</sup> (Munich, 1905-1917).

<sup>21</sup> (Berlin/Munich, 1929-1983).

<sup>22</sup> (Berlin, 1909-1931).

<sup>23</sup> (Berlin, 1933-→).

and begun to overturn academic hierarchies and intellectual values. Consequently, the traditional forms and functions of disciplinary history became problematic. No longer did the parent science serve as the main stimulus for historical questions, nor were the scientists able or willing to keep up with the work done by historians of science. After the turn of the century, historical introductions to science textbooks faded away, obituaries in journals lost weight, and the demand for history of science textbooks declined. Except for the Heidelberg institute funded by a private foundation for Julius Ruska, the eminent scholar of Arabic alchemy, the history of science had little institutional basis in German universities prior to World War II. Its practitioners were working scientists or leisured industrialists with a strong footing in the neo-humanist tradition. This *Bildungsbürger* background made it easy to place history of science articles in a relatively wide range of scientific or popular journals, and academic tradition together with the Deutsche Gesellschaft für Geschichte der Medizin und Naturwissenschaft provided a certain disciplinary mould; nevertheless there was a deep gap between historians of science and the engineer-historians as well as the general historians, and the meetings of the Deutsche Gesellschaft were clearly dominated by historians of medicine.

#### THE DECLINE IN THE 1930S

The post-1918 isolation of German and Austrian scholars, the economic crisis, the fate of the Weimar Republic and the rise of Nazi Germany were detrimental to a further development of the field. The advantages of the German educational system and its universities remained, but most inter-war achievements were delayed pre-war developments rather than fresh movements. The few new journals were local projects such as the *Jahresbericht des Instituts für Geschichte der Naturwissenschaften der von Portheim-Stiftung*<sup>24</sup> issued by Ruska's institute; the ambitious yearbook *Kyklos*<sup>25</sup> run by Henry Ernest Sigerist on behalf of the Leipzig Institute for the History of Medicine; or *Proteus*,<sup>26</sup> the proceedings of a Bonn-based branch of the German Society for the History of Medicine and Science.

Other new journals of the time were addressed to a very specific audience: the *Forschungen zur Geschichte der Optik* appeared as supplement to the *Zeitschrift für Instrumentenkunde* between 1928-1939, while a slim magazine, *Zur Geschichte der deutschen Apotheke*,<sup>27</sup> commemorated the glorious past of German apothecaries. None of them survived for more than a few issues, however.

In 1930 the Prussian Minister of Education, an Arabist of distinction himself, tried to raise the critical mass of the history of science and medicine by concentrating forces in the leading university. For this purpose Ruska's private research institute was transferred to Berlin, and the medical historian Paul Diepgen was appointed director of a new Institute for the History of Medicine and Science. Yet the beginning was ill-timed. After Sigerist's departure for Johns Hopkins in 1932, and the removal of Richard Koch, Walter Pagel and Theodor Meyer-Steineg from their professorships in 1933, the number of academic positions in the history of medicine remained low (some 20 people at most) in the Third Reich. In the history of science the situation was even worse. Apart from Ruska in Berlin, only the historian-philosopher of biology Adolf Meyer-Abich in Hamburg had a paid position at university level.

In consequence, most German history of science journals were either abandoned during this period or continued on a reduced scale – not so much as a result of political pressure, but rather because of a lack of input and demand. Apart from the popular series *Deutsches Museum: Vorträge und Berichte*, only two serious German history of science journals survived the period 1930-1945: *Sudhoffs Archiv* and *Technikgeschichte*. Both of them were only slightly ideologically tinted. Would-be historians of science who sympathised with the Nazi ideology preferred the more popular general science journals and science teachers' journals for their blend of Germanic ideology, holism, and history. The leading organ of this kind was the *Zeitschrift für die gesamte Naturwissenschaft*<sup>28</sup> that originated as the organ of the Nazi Science Students Section (Reichsfachgruppe Naturwissenschaft der Reichsstudentenführung) and explicitly included natural philosophy and the history of science and medicine in its subtitle.

<sup>24</sup> (Heidelberg, 1927-1929).

<sup>25</sup> (Leipzig, 1928-1932).

<sup>26</sup> (Bonn, 1931-1943).

<sup>27</sup> (Stuttgart, 1933-1939).

<sup>28</sup> (Berlin/Braunschweig, 1935-1943).

## THE POST-WAR PERIOD: THE WEST

After World War II it took some time for new traditions and structures to consolidate. As early as 1943 the Schweizerische Gesellschaft für Geschichte der Medizin und der Naturwissenschaften began to issue its quarterly *Gesnerus*,<sup>29</sup> a predominantly German-language and medico-historical journal which still continues in a somewhat traditional fashion. Yet its foundation did not mark the commencement of a strong history of science tradition in Switzerland, but was rather a result of the politically motivated split within the German-speaking history of science community.

A striking phenomenon of the post-war period is the widespread establishment of a German historiography of pharmacy, which had been institutionalised in a Deutsche Gesellschaft für Geschichte der Pharmazie since 1927. Paracelsus worship was an important motive and was supported by the Nazis on ideological grounds. Its first organs were the *Acta Paracelsica*<sup>30</sup> and its 'neutral' Swiss counterpart *Nova Acta Paracelsica*.<sup>31</sup> After the War, a *Paracelsus-Brief: Mitteilungen der Internationalen Paracelsus-Gesellschaft Salzburg*<sup>32</sup> appeared as a supplement to a purely chemical journal (*Praktische Chemie*). Less dubious, though rather amateurish in character, were two other history of pharmacy journals: *Beiträge zur Geschichte der Pharmazie*,<sup>33</sup> a supplement to the *Deutsche Apotheker-Zeitung*, the professional journal of German apothecaries; and the *Beiträge zur Württembergischen Apothekengeschichte*,<sup>34</sup> an occasional publication of only local significance with most articles written by the editor himself. However, the existence of the *Pharmaziegeschichtliche Rundschau*,<sup>35</sup> a current bibliography on the history of pharmacy which comes as a supplement to the professional journal *Pharmazeutische Zeitung*, illustrates the emergence of the history of pharmacy as a well-defined and popular sub-discipline. The history of pharmacy is clearly a German speciality, a fact which was acknowledged in 1965 by the creation of university sections in Marburg and Braunsch-

weig. Popular topics are the history of the profession or *Standesgeschichte*, the history of particular apothecaries' shops, the history of drugs, and drug legislation.

For the rest of German history of science things began to change very gradually after the War. The appearance of an obscure Gesellschaft für internationale Wissenschaftsgeschichte in 1951 was clearly premature and ill-judged, its journal *Abhandlungen zur Wissenschaftsgeschichte und Wissenschaftslehre*<sup>36</sup> did not survive a fourth slim number. Two yearbooks issued by history of medicine institutes remained newsletters with a limited range of authors and with little impact: *Mitteilungen aus dem Georg-Sticker-Institut für Geschichte der Medizin*,<sup>37</sup> *Mitteilungen aus dem Institut für Geschichte der Medizin und Pharmazie*.<sup>38</sup> Although the Deutsche Gesellschaft für Geschichte der Medizin, Naturwissenschaft und Technik had resumed operations in 1948, the society was not in a position to issue a journal but rather continued its pre-war *Mitteilungen*, which had ceased to appear in 1942, as a modest *Nachrichtenblatt*<sup>39</sup> containing news from the profession and reports of meetings.<sup>40</sup>

The breakthrough came in the 1960s. Following a memorandum of the Federal Research Foundation (Deutsche Forschungsgemeinschaft) in 1959, the Wissenschaftsrat, an advisory council on science and higher education, recommended the establishment of the history of science and the history of technology as independent university disciplines. As a consequence, chairs for the history of science were created at the universities of Hamburg, Munich, Tübingen, Stuttgart, Mainz, Berlin, and Regensburg during the 1960s. Even more impressive was the rise of medical history which became part of the medical curriculum in 1970 and was provided with a well-staffed institute at every medical school.<sup>41</sup> A third move came with the institutionalisation of science studies centres in Starnberg, Bielefeld and Erlangen in the early 1970s. As these research schools favoured a sociological more than a historical approach to the study of

<sup>29</sup> (Aarau 1943 →).

<sup>30</sup> (Munich, 1930-1932).

<sup>31</sup> (Basel, 1944-1957).

<sup>32</sup> (Wien, 1954-1972).

<sup>33</sup> (Stuttgart, 1950 →; from 1990: *Geschichte der Pharmazie*.)

<sup>34</sup> (Stuttgart, 1950 →).

<sup>35</sup> (Frankfurt, 1952-1987; continued as *Pharmaziehistorische Bibliographie*. Eschborn, 1988/92 →)

<sup>36</sup> (Bremen, 1951-1952).

<sup>37</sup> (Würzburg, 1957-1962).

<sup>38</sup> (Kiel, 1963-1973).

<sup>39</sup> (Frankfurt/Alzey, 1948 →).

<sup>40</sup> WINAU, Rolf, *Deutsche Gesellschaft für Geschichte der Medizin, Naturwissenschaft und Technik, 1901-1976* (Wiesbaden, 1978).

<sup>41</sup> ROELCKE, Volker, "Die Entwicklung der Medizingeschichte seit 1945", *NTM N.S.*, 1994, 2: 193-216.



science, they remained distinct from the mainstream of German history of science.

The most remarkable change in post-war German history of science was the foundation of the Gesellschaft für Wissenschaftsgeschichte in 1964. Unhappy with the traditional scientists' and doctors' historiography and its disciplinary constraints, a few younger scholars launched an ambitious attempt to study science from a more general and interdisciplinary point of view. For that purpose the new society took the German conception of *Wissenschaft* to heart, i.e. to encompass scholarship in general and therefore to include not only the history of medicine and science, but also the history of philosophy, the history of philology, of historiography, of the social sciences, of law and even of theology. It goes without saying that this view of *Wissenschaft* has the neo-Humboldtian and ideological roots characteristic of the German tradition and reminds us of Ranke's project in the 1850s.

At the time, the foundation of the Gesellschaft für Wissenschaftsgeschichte was a rather radical act as it implied the breaking apart of the additive umbrella structure realised in the Deutsche Gesellschaft für Geschichte der Medizin, Naturwissenschaft und Technik. A political scandal concerning the Nazi past of one medical historian was the initial catalyst, but the wider issue at stake was a historiographical one or, more precisely, the question of continuity or discontinuity in German history of science and the way the discipline was dealing with its own past.<sup>42</sup>

Yet, it was not until 1978 that the Gesellschaft für Wissenschaftsgeschichte transformed its original newsletter *Mitteilungen der Gesellschaft für Wissenschaftsgeschichte*<sup>43</sup> into the *Berichte zur Wissenschaftsgeschichte*,<sup>44</sup> a research journal which primarily publishes the papers read at the annual symposia, supplemented by reviews and a few independently submitted articles. The idea behind the society, i.e. the peculiar definition of its subject matter, was taken up by the *Mitteilungen der Österreichischen Gesellschaft für Wissenschaftsgeschichte*<sup>45</sup> which, however, remained more restricted in its aims, coverage and circulation.

The rapid institutional transformation of German history of science

since the 1960s is clearly reflected in the journals. *Technikgeschichte* and *Sudhoffs Archiv*, the only ones that had survived World War II, continued to represent the more traditional approaches, the first being run by the Verein Deutscher Ingenieure, the second as a commercial enterprise but with personal and intellectual links with the work of the Deutsche Gesellschaft. In 1966 the *Medizinhistorisches Journal*<sup>46</sup> was inaugurated as a forum for historiographically more sophisticated papers on the history of medicine. Three years later *Studia Leibnitiana: Vierteljahresschrift für Philosophie und Geschichte der Wissenschaften*,<sup>47</sup> run by the Gottfried-Wilhelm-Leibniz-Gesellschaft, provided a platform for high-quality articles on the history of philosophy, the history of ideas and philosophical issues in the history of science, laying particular emphasis on the seventeenth and eighteenth centuries. Its supplement series publishes book-length studies in the same fields. In the field of philosophy in a narrower sense, the *Archiv für Begriffsgeschichte*<sup>48</sup> created a forum for the history of ideas and philosophical concepts, including of course scientific ones.

Other undertakings were less successful. In the early 1970s an attempt to break the monopoly of *Sudhoffs Archiv* and to establish *Rete: Zeitschrift für Strukturgeschichte der Naturwissenschaft*<sup>49</sup> as a rival did not last very long. More durable were the efforts of the Georg Agricola Gesellschaft, basically a fund-raising body with strong ties with professional and industrial groups, to produce a modest series *Die Technikgeschichte als Vorbild moderner Technik*.<sup>50</sup> Two years later the Deutsches Museum, which otherwise had not been very lucky with its publications, launched its *Kultur und Technik*,<sup>51</sup> to popularise the history of technology (and of science).

Thus, by the late 1970s a well defined pattern had been established. *Technikgeschichte* and *Sudhoffs Archiv* represented the more traditional approaches to the history of medicine, science and technology, often, though not necessarily so, positivist in approach and close to disciplinary history, and – in the case of *Sudhoffs Archiv* – with particular emphasis on source-oriented, archive-type articles. The *Medizinhistorisches Journal* catered for

<sup>42</sup> JOBMANN, Anke, *Familientreffen versus Professionselite? Vergangenheitsbewältigung und Neustrukturierung in der deutschen Wissenschaftsgeschichte der 60er Jahre* (Berlin, 1998).

<sup>43</sup> (Düsseldorf, 1965–1974).

<sup>44</sup> (Weinheim/Berlin, 1978→).

<sup>45</sup> (Vienna, 1981→).

<sup>46</sup> (Stuttgart, 1966→).

<sup>47</sup> (Stuttgart, 1969→).

<sup>48</sup> (Bonn, 1955–1986/7).

<sup>49</sup> (Hildesheim, 1971–1973).

<sup>50</sup> (Düsseldorf, 1975→).

<sup>51</sup> (München, 1977→).

the still growing history of medicine community and responded more readily to the influence of general and social history. *Studia Leibnitiana* served the history of ideas approach and linked historians of early modern science to the history of philosophy community. The *Berichte zur Wissenschaftsgeschichte*, finally, provided a platform for the multidisciplinary approach favoured in the meetings of the supporting society. As the respective profiles were more or less clearly defined, the resulting pattern represented a division of labour rather than competition. Except for the *Berichte*, which were run as a members' journal and largely financed through membership fees, these journals were published by commercial publishers and were only nominally, if at all, linked to a society. Economic constraints and editorial problems did exist, but they were largely due to the limited market for German language publications.

#### PARADISE LOST? THE EAST

After the Second World War all but one of the university centres of German history of science happened to be in the East: Leipzig's Karl-Sudhoff-Institut, Berlin's Institut für Geschichte der Medizin und der Naturwissenschaften and Ernst Haeckel's former institute in Jena, which was transformed, in 1945, into an institute for the history of zoology and evolutionary biology. But, due to lack of scholars and funds, only Leipzig was in operation. When in 1951 the physicist Gerhard Harig took over the Sudhoff chair, it was not only the first time a historian of science had conquered a stronghold of medical history, but also the beginning of a German-language Marxist historiography. Contacts between historians of science in East and West Germany were difficult at that time, and by the late 1950s they had been almost entirely suppressed. For a while the Deutsche Gesellschaft remained an all-German society, but after 1958 its GDR members were no longer allowed to receive Western periodicals. Eventually, in 1961, the Berlin Wall brought the relationship to an end.

By that time institutional structures had been consolidated in the East. From 1960 the Leipzig institute issued *NTM Schriftenreihe für Geschichte der Naturwissenschaften, Technik und Medizin*,<sup>52</sup> which was soon to become something like the official medium of, and remained the main show-

case for, East German history of medicine and science. During the same year, 1960, the centralised GDR university system introduced the history of science into science teaching as a compulsory part, and a corresponding number of positions were created. The university reform of 1968, and the assumption that science and technology needed to be studied for science policy reasons in a planned economy, led to the establishing of science studies and research management and to the creation of institutes for Wissenschaftstheorie und Wissenschaftsorganisation at the Humboldt University and the GDR Academy of Sciences. From 1981 the Academy published the meetings of its history of science research group in a journal-like series *Akademie der Wissenschaften der DDR, Institut für Theorie, Geschichte und Organisation: Kolloquien*.<sup>53</sup> Yet, the ultimate institutionalisation of the history of science in East Germany came as a result of a 1975 SED Zentralkomitee directive that the discipline should be used as an ideological tool in the formation of a socialist society.<sup>54</sup>

It is difficult to judge to what extent these aims were in fact shared by the majority of East German historians of science, or whether they were rather used opportunistically to find a niche somewhere at the fringes of historical and philosophical orthodoxy. Be it as it may, East German history of science publications, cut off from the mainstream of Western developments as they were, remained strangely coloured by an internalist and presentist approach inherited from bourgeois historiography with its preference for great men, great ideas and the celebration of anniversaries. The non-existence of a truly Marxist historiography of science that would have gone beyond good old J. D. Bernal and would have been taken seriously by Western Marxists is one of the enigmas of GDR history of science.

In reality the plurality of approaches in East German history of science was more marked than the few official showcases suggested.<sup>55</sup> But this activity was hardly visible in the West since most GDR periodicals that printed articles on the history of science were not available through book-sellers. The oldest of these journals are the *Beiträge zur Geschichte der Uni-*

<sup>53</sup> (Berlin, 1981-1990).

<sup>54</sup> WUSSING, Hans, "Dreissig Jahre Wissenschaftsgeschichte in der Deutschen Demokratischen Republik", *NTM*, 1979, 16, 2: 1-13.

<sup>55</sup> "Beiträge zur Wissenschaftsgeschichtsschreibung in der DDR", *Rostocker Wissenschaftshistorische Manuskripte*, 1989, 16.

<sup>52</sup> (Leipzig, 1960-1991).



versität Erfurt, later renamed as *Beiträge zur Hochschul- und Wissenschaftsgeschichte Erfurts*,<sup>56</sup> a university history journal with a substantial proportion of history of medicine and science articles, run by a local medical school and aimed at keeping alive the memory of a university that had ceased to exist in 1816. From the 1980s the university of East Berlin issued the *Beiträge zur Geschichte der Humboldt-Universität*,<sup>57</sup> and Jena followed with its *Alma Mater Jenensis: Studien zur Hochschul- und Wissenschaftsgeschichte*.<sup>58</sup>

Even smaller GDR research groups in the history of science published their own journals: the *Arbeitsblätter zur Wissenschaftsgeschichte*,<sup>59</sup> the *Rostocker wissenschaftshistorische Manuskripte*,<sup>60</sup> or the *Dresdner Beiträge zur Geschichte der Technikwissenschaften*.<sup>61</sup> In addition, most East German universities and even teachers' training colleges (Pädagogische Hochschulen) produced their own newspaper-like journals, many of which regularly published at least something on the history of science.<sup>62</sup> The quality varies, of course, and much of it has merely local or pedagogical significance. Naturally, there are exceptions like, for example, the research on the emergence of scientific disciplines in Rostock, or the attempts at the Academy Institute to pursue philosophical questions within the history of science.

The very existence of this mass of 'grey literature' on low-quality paper has a complex explanation which includes questions of economy and of mentality. On the economic side, the shortage of paper and printing technology put severe restrictions on book and journal publishing in general, and as GDR scholars were not allowed to submit papers to Western journals, the restricted access to *NTM* was often the only way to reach an international audience. Below this level, things were more flexible here and there. Local loyalties were crucial in that regard. On the emotional side these local periodicals strengthened regional identities and helped to compensate for the levelling tendency of the Berlin-centred regime.

None of the East German journals survived the new political and eco-

nomic situation after German reunification.<sup>63</sup> Only the Leipzig *NTM* continues in a modified form as *NTM Internationale Zeitschrift für Geschichte und Ethik der Medizin und Naturwissenschaften*<sup>64</sup> with a Swiss publisher; but after having lost its original function as a showcase of GDR history of science, it doesn't yet seem to have found its definitive place within the existing pattern of German language periodicals.

## THE PRESENT SITUATION

At present, the situation is not easy. The period of expansion is over. At university level there have been some recent gains in the history of technology, but a number of losses in the history of science, most dramatically of course in the East.<sup>65</sup> Even the traditionally strong position of medical history is being jeopardised by the new shift towards medical ethics. It remains to be seen whether or not the 1992 foundation of a Max Planck Institut für Wissenschaftsgeschichte in Berlin will have the much-desired positive impact on institutional developments and publication patterns within Germany.

As far as journals are concerned, there have been few new foundations since the 1980s. If we look at the growth rate, there is a significant flattening of the curve. The few exceptions from this general rule were either limited in scope or doomed to failure. Thus the 1983 *Würzburger Medizinhistorische Mitteilungen*<sup>66</sup> is the house journal of a particular institute in the field of the history of medicine that specialises in philological aspects of medieval scientific texts. The Frankfurt-based *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften*<sup>67</sup> is confined to the very small community of scholars working on Arabic science. Obviously, not even a stable institutional background is sufficient to stabilise a periodical nowadays:

<sup>63</sup> SIEGMUND-SCHULTZE, Reinhard, "Die 'Abwicklung' der Naturwissenschaftshistoriographie der ehemaligen DDR: Vorläufige Bilanz eines Ostdeutschen", *Geschichte und Gesellschaft*, 1996, 22: 417-427.

<sup>64</sup> (Basel, 1993→).

<sup>65</sup> For the present situation, excluding the history of medicine, see WEBER, Wolfhard, "Naturwissenschaftsgeschichte und Technikgeschichte in Deutschland, 1993-1996: Eine Übersicht über Forschung und Lehre an den Institutionen", *Berichte zur Wissenschaftsgeschichte*, 1997, 20, 1-130.

<sup>66</sup> (Würzburg, 1983→).

<sup>67</sup> (Frankfurt, 1983→).

<sup>56</sup> (Erfurt, 1955-1979/83).

<sup>57</sup> (Berlin, 1980-1994).

<sup>58</sup> (Jena, 1983-1991).

<sup>59</sup> (Halle, 1977-1989).

<sup>60</sup> (Rostock, 1978-1992).

<sup>61</sup> (Dresden, 1980-1994).

<sup>62</sup> See also FRIEDRICH, Christoph, "Die Geschichte der Pharmazie in der DDR: Versuch einer Bestandsaufnahme", *Pharmazie*, 1989, 44: 527-532.

The *Mitteilungen aus dem Deutschen Apotheken-Museum im Heidelberger Schloss*<sup>68</sup> have ceased to exist, and the Deutsches Museum had to stop its valuable *Wissenschaftliches Jahrbuch*<sup>69</sup> after the fourth volume. Finally, the *Jahrbuch für Geschichte und Theorie der Biologie*,<sup>70</sup> edited by a newly founded society of the same name and now in its fourth year, has yet to establish itself in the difficult market.

There is, on the other hand, considerable movement and growth in the domain of history of science newsletters, which provide more informal means of communication, and some of which do contain research articles. Most of these newsletters originated in the historical subsections of the respective associations of professional scientists; but as a rule they are run by trained historians of science and no longer by the scientists themselves, and consequently serve as a valuable link between the history of science community and the scientific community. Thus the Arbeitskreis Geschichte der Geophysik of the Deutsche Geophysikalische Gesellschaft started its *Mitteilungen* in 1982, the Fachgruppe Geschichte der Chemie of the Gesellschaft Deutscher Chemiker has produced 13 volumes of its *Mitteilungen* since 1988, five years later the Deutsche Astronomische Gesellschaft launched its *Mitteilungen zur Astronomiegeschichte*, and the Deutsche Physikalische Gesellschaft followed in 1994. The rise of the newsletters is a phenomenon of the 1980s and 1990s, though presumably an ephemeral one. For, as their multiplication was partly a result of modern desk-top publishing, the more recent e-mail and WWW facilities are likely to make them disappear sooner or later.

Besides the rise of the newsletters, there are several hints of a growing public interest in the history of science and a growing demand for the expertise that historians of science have to offer. But one may ask why there has been so little real movement in the German history of science press during the past years: why do the same five journals that have been the leading ones for two decades still seem to suffice; why were potential rivals doomed to failure; and why is it that even the established journals have difficulties with rising prices and a declining input which is only partially explained by the shrinking institutional basis?

The first part of the answer is the limited market for German language

publications in general. At a time when even the country's largest scientific society, the German Chemical Society with almost 29,000 members, has decided to publish all its chemical journals – except *Angewandte Chemie*, which has an twin-language edition – exclusively in English (and remember what a stronghold of the German language chemistry was in world science for almost a century!), it is hardly surprising that the market for a small subject such as the history of science is even more restricted. The second part of the answer is of course the growing internationalisation of our field. The history of science community is no longer exclusively, and not even predominantly, organised according to national boundaries. So why should a historian of science prefer a national journal if he or she feels that a foreign one might be more visible or more appropriate. No doubt, language does matter, and in that regard there is a difference between a paper on physics and one on history, but as some of the leading history of science journals in Europe do accept articles in various languages, publishing abroad does not necessarily imply losing control over the subtleties of one's arguments.

This is a point which we ought to think about more seriously in the future. The diversity of cultures and languages is one of the most precious features of Europe. The future unity of our continent will be polyglot, and I have a vision that the history of science journals will follow this path. On the level of societies and journals, a merging of national endeavours has not yet begun, but there are a number of convincing examples that testify that truly international and polyglot journals can be run highly successfully – and *Nuncius* is one of the foremost examples.

<sup>68</sup> (Heidelberg, 1986–1990).

<sup>69</sup> (Munich, 1989–1993).

<sup>70</sup> (Berlin, 1994–).